

**(12) UK Patent Application (19) GB (11) 2 309 233 (13) A**

**(43) Date of A Publication 23.07.1997**

(21) Application No 9700928.6

**(22) Date of Filing 17.01.1997**

**(31) 9601239**

**(32) 22.01.1996**

**(33) GB**

(51) INT CL<sup>6</sup>

**E04B 2/78**

(52) UK CL (Edition O)

E1D DCB2 DF194 DLEKM2 D113 D126 D2047 D2137

**D405 D902**

**(56) Documents Cited**

WO 90/08865 A1    FR 002376927 A    US 4587774 A

**(58) Field of Search**

UK CL (Edition O) E1D DCB DCX DF194 DK DLCKH

DLCKJ DLCKM DLEKH DLEKJ DLEKMNV

INT CL<sup>6</sup> E04B, E06B

**On-line database - Derwent W.P.I**

**(71) Applicant(s)**

**MHR Designs Limited**

**(Incorporated in the United Kingdom)**

**Boundary Road, HAVERILL, Suffolk, CB9 7YH,  
United Kingdom**

(72) Inventor(s)

**Lee Arnold Roth**

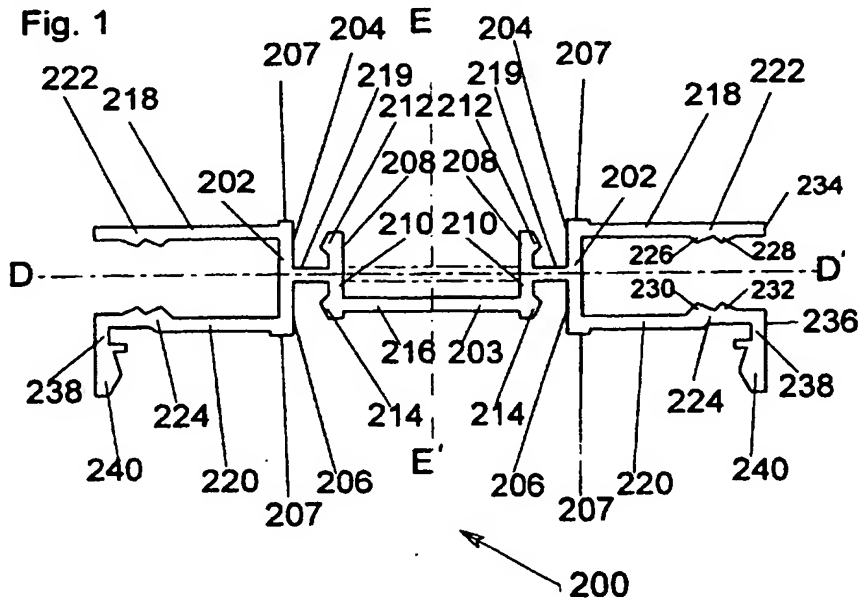
**(74) Agent and/or Address for Service**

**Denis I Tapp**

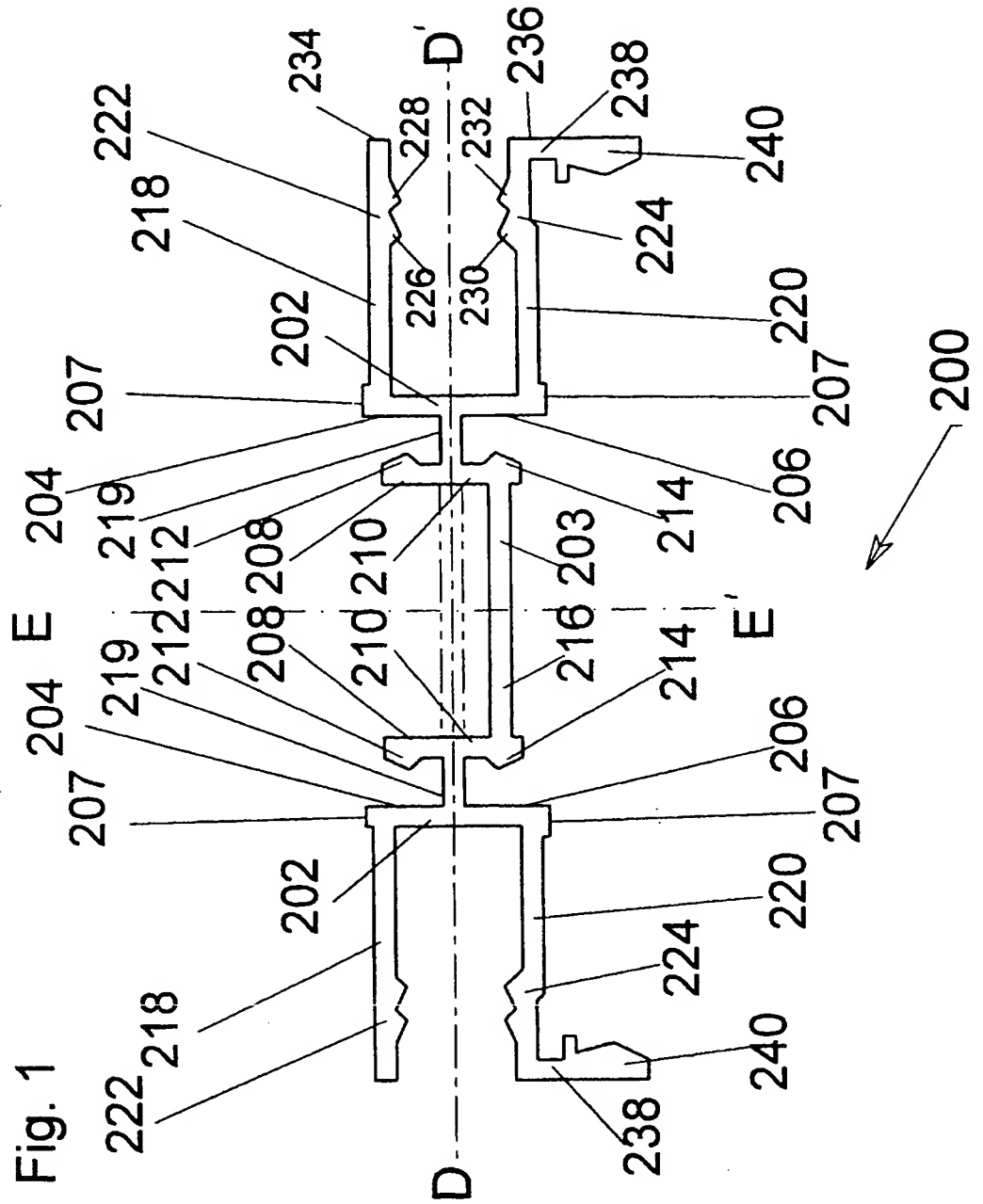
**95 Amberley Road, Abbey Wood, LONDON, SE2 0SG,  
United Kingdom**

#### (54) Partitioning systems

(57) A primary elongate partitioning member 200 has a cross-section perpendicular to its length based on an H-configuration comprises two vertical bars 202 generally perpendicular to a cross-bar 203 based on a median axis D-D' which bisects the bars. The vertical bars 202 are each provided with horizontal arms 218, 220 having clipping formations 222, 224 suitable for engagement by co-operating clipping formations on elongate end covers approaching horizontally. The lower arms 220 are each provided with a vertical stem 238 which terminates in a further clipping formation 240, the formations 240 providing for snap-fit engagement with co-operating clipping formations on a door frame member (not shown) approaching vertically.



GB 2 309 233 A



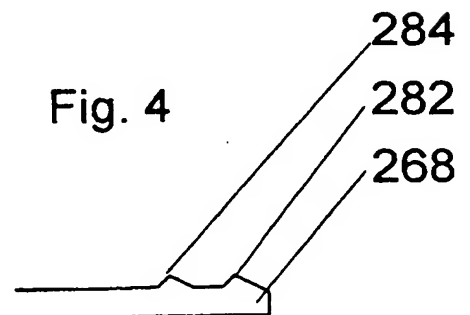
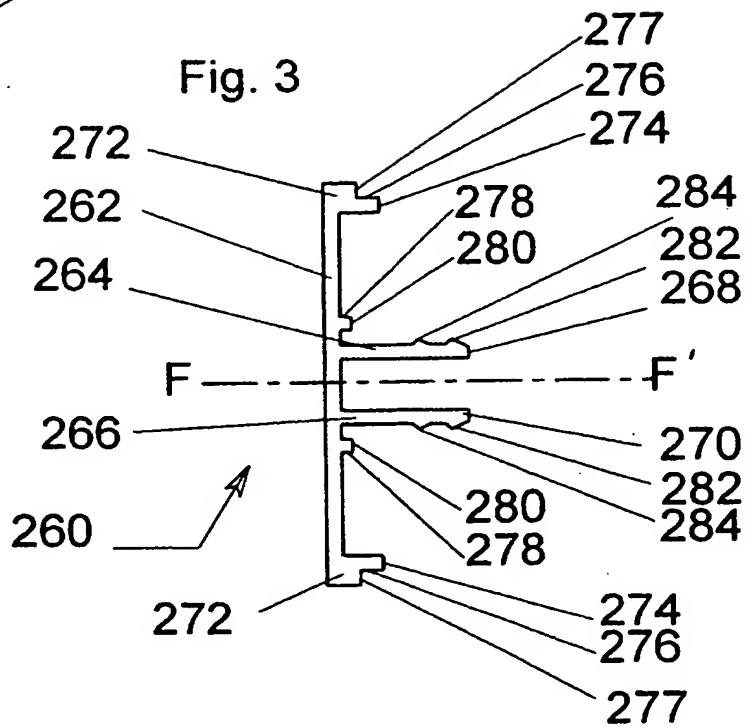
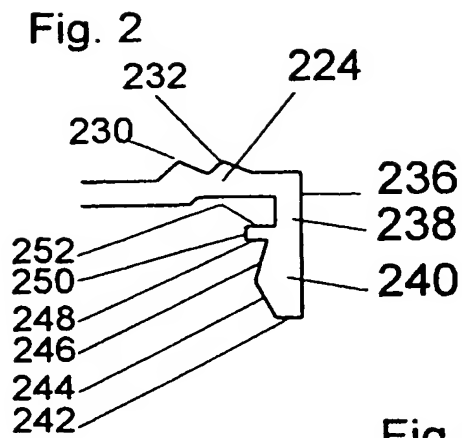


Fig. 5a

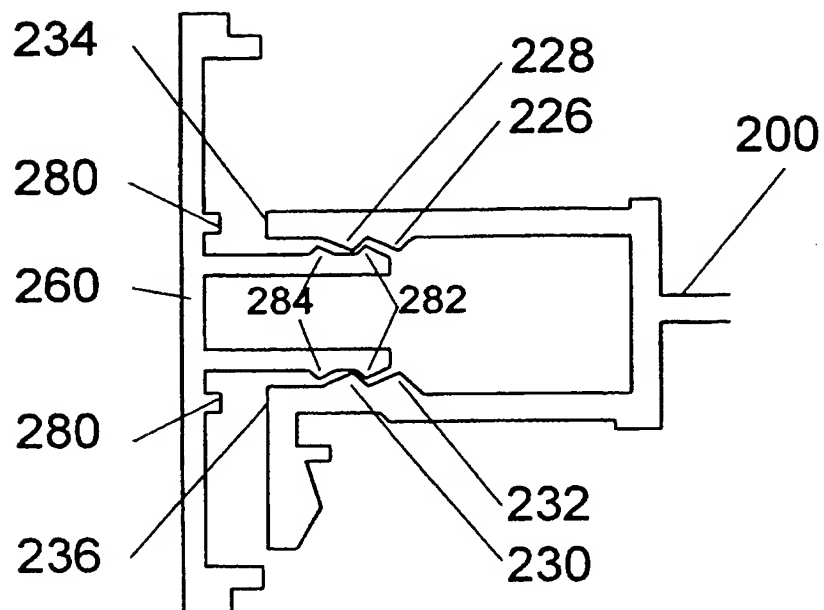
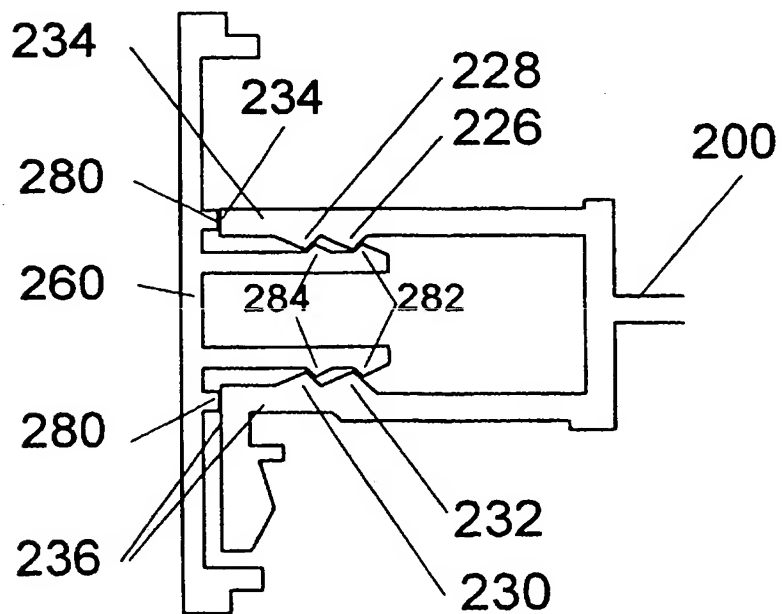
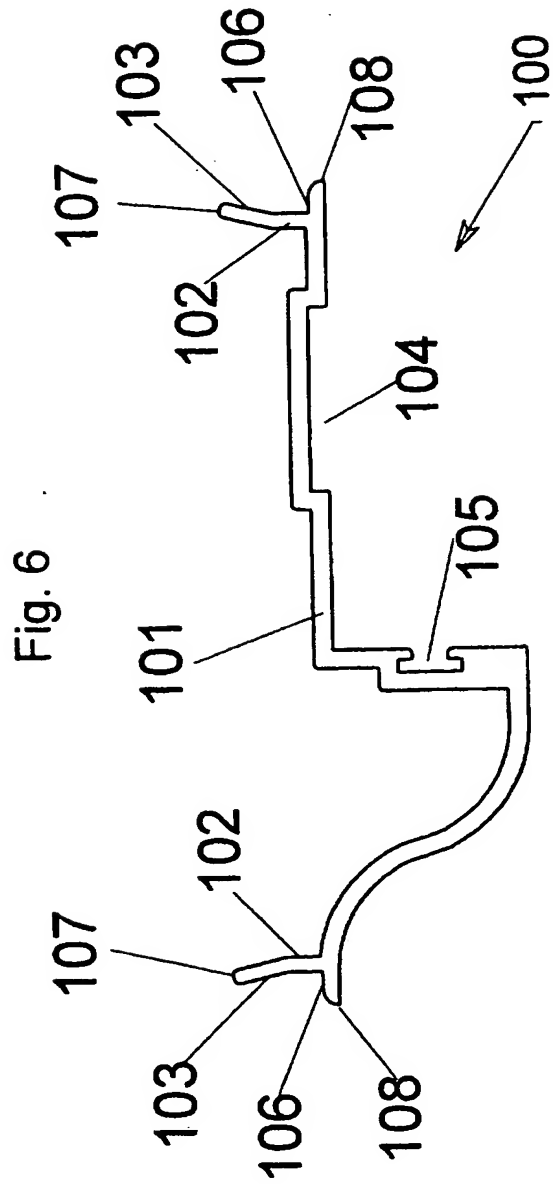


Fig. 5b





5/10

Fig. 7

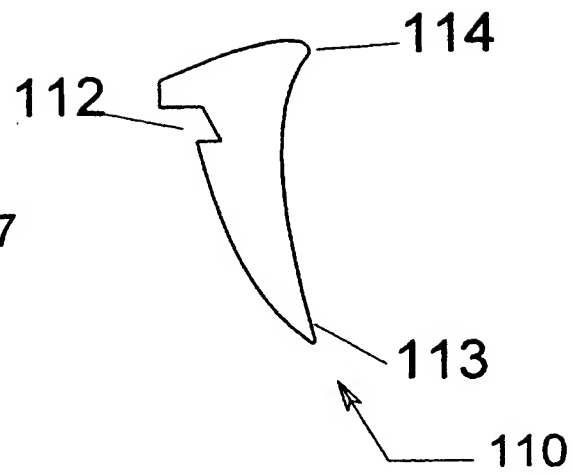


Fig. 8

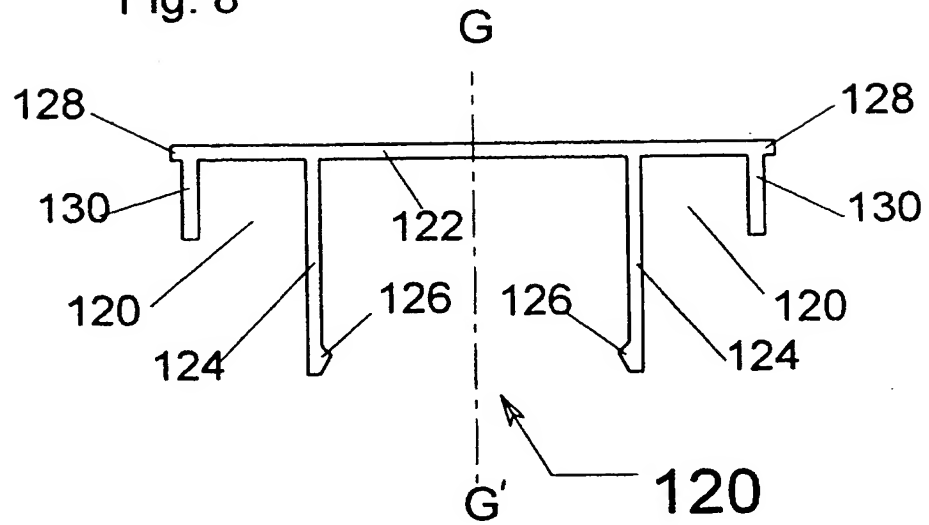
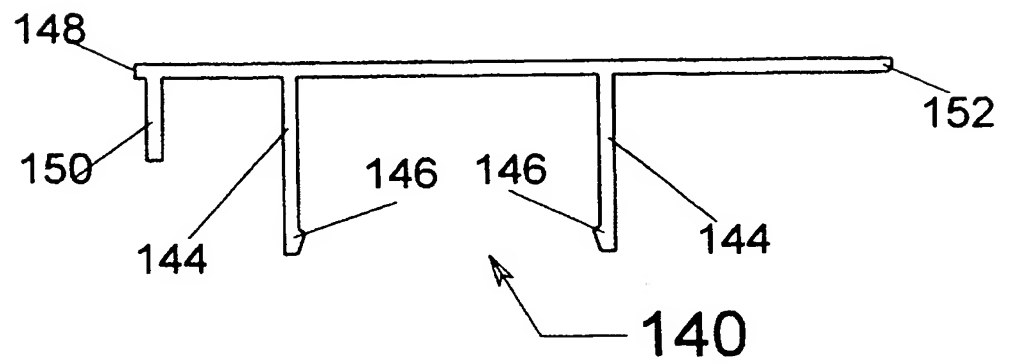


Fig. 9



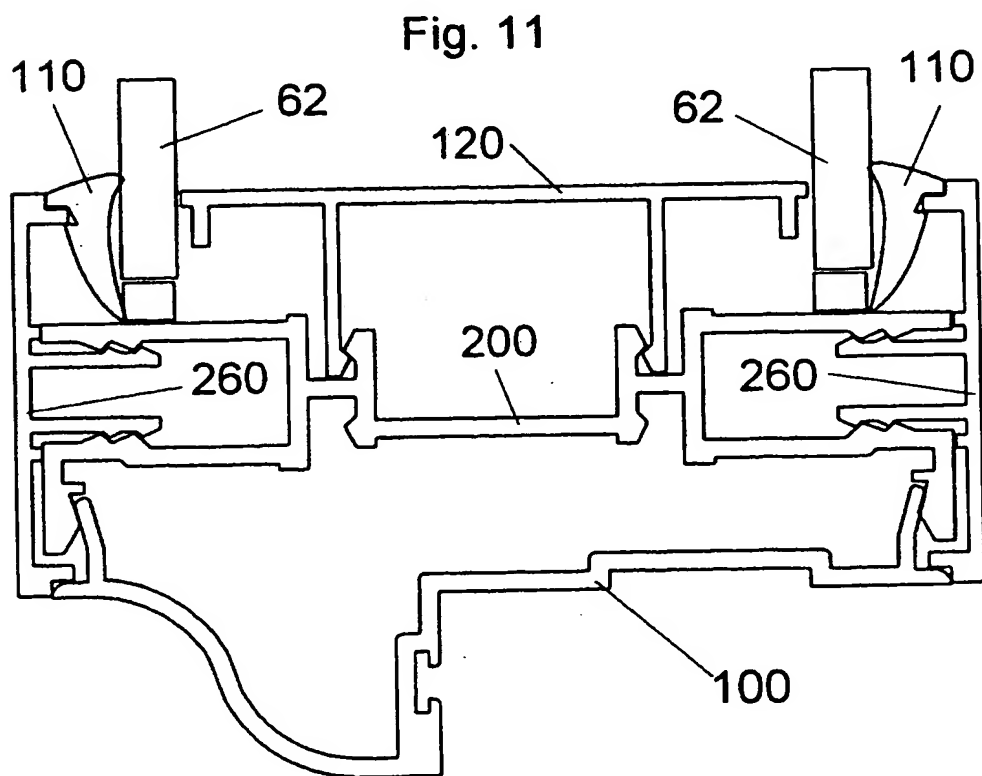
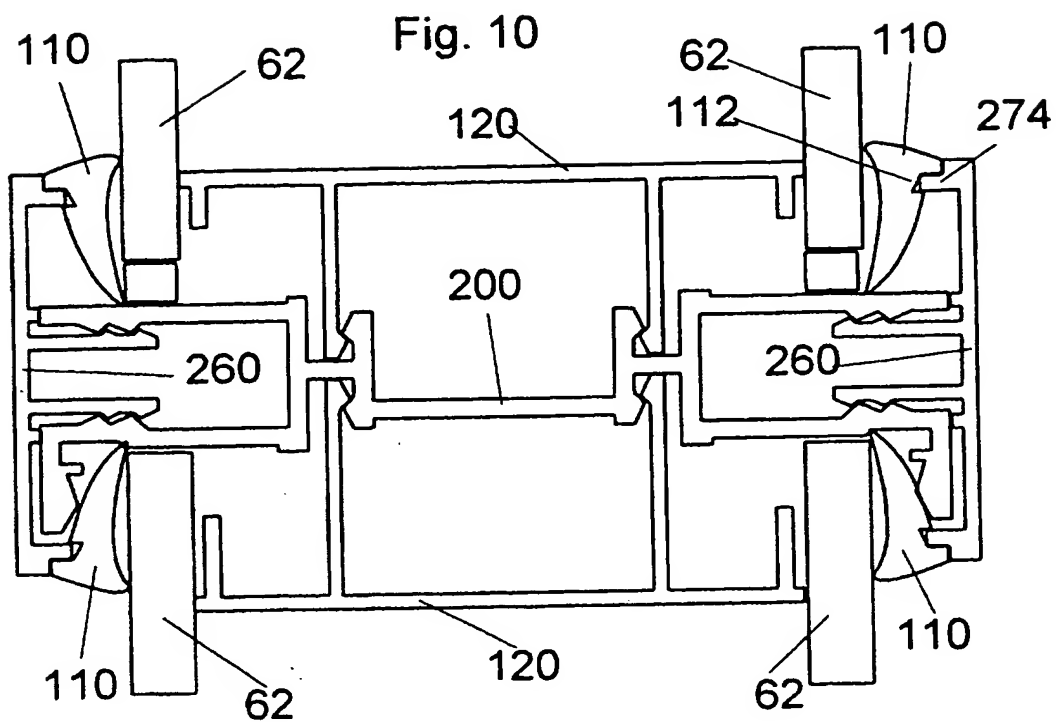


Fig. 11A

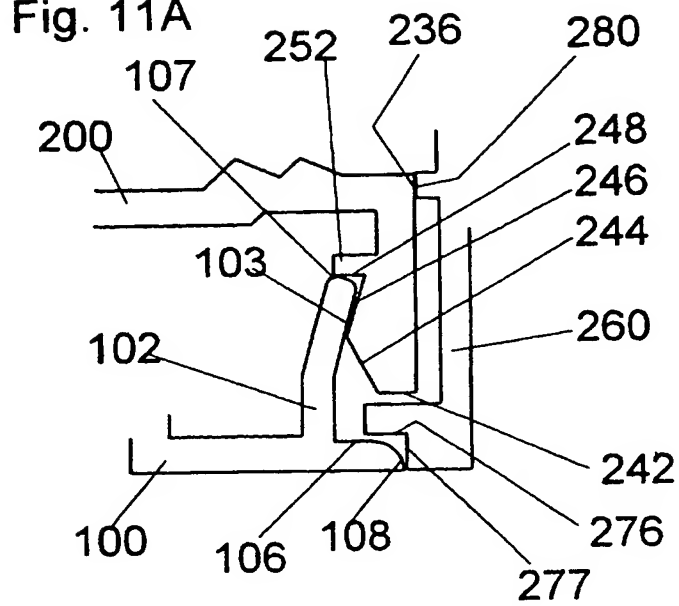


Fig. 12

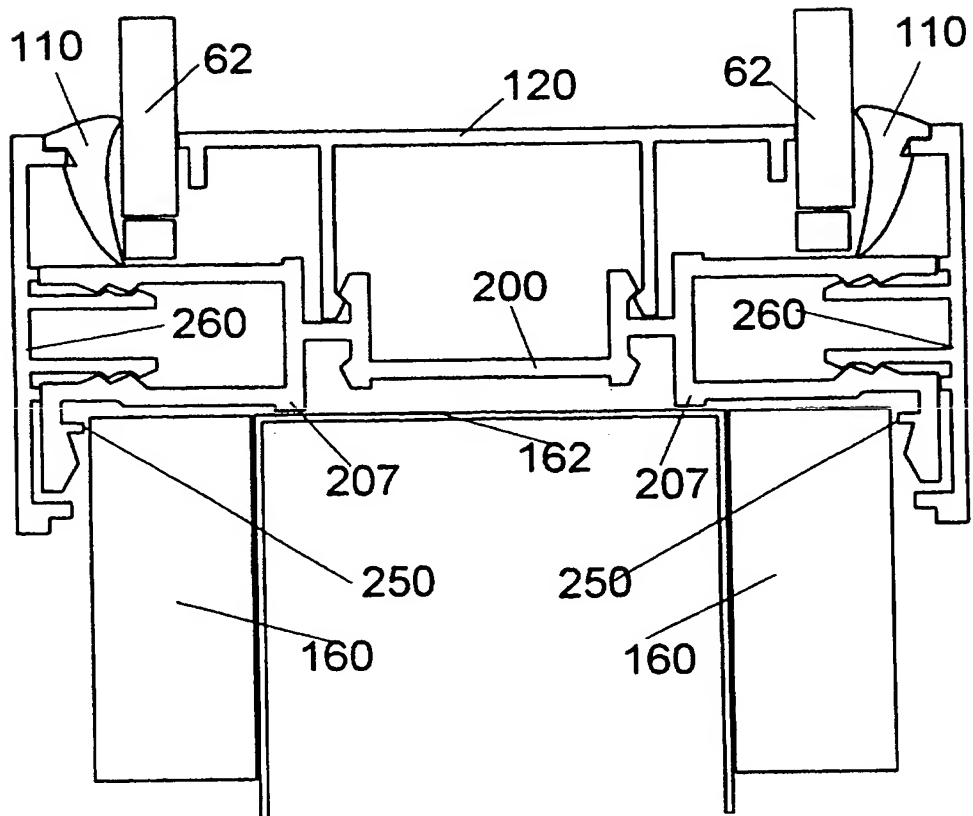


Fig. 13

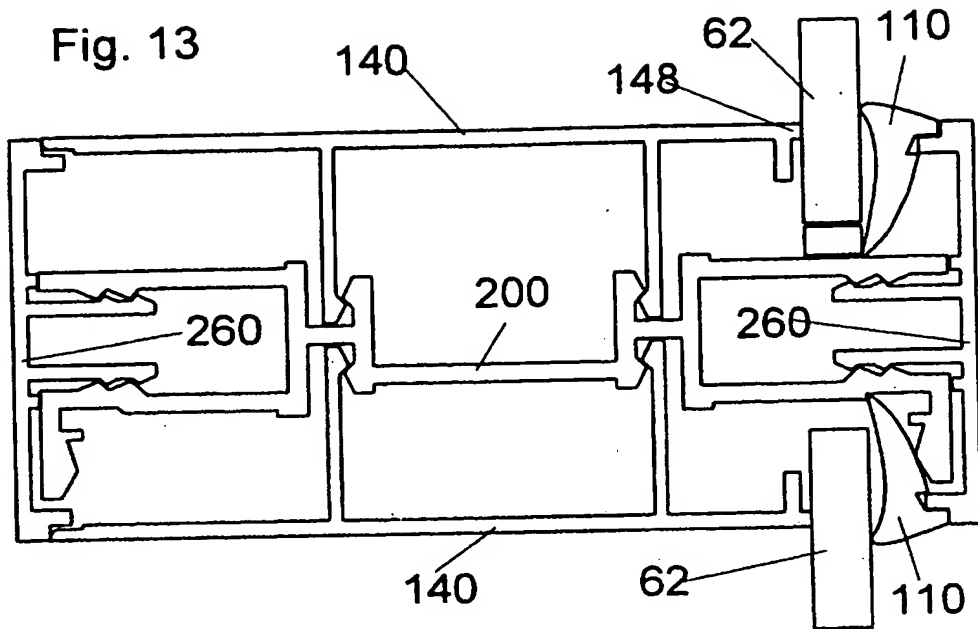


Fig. 14

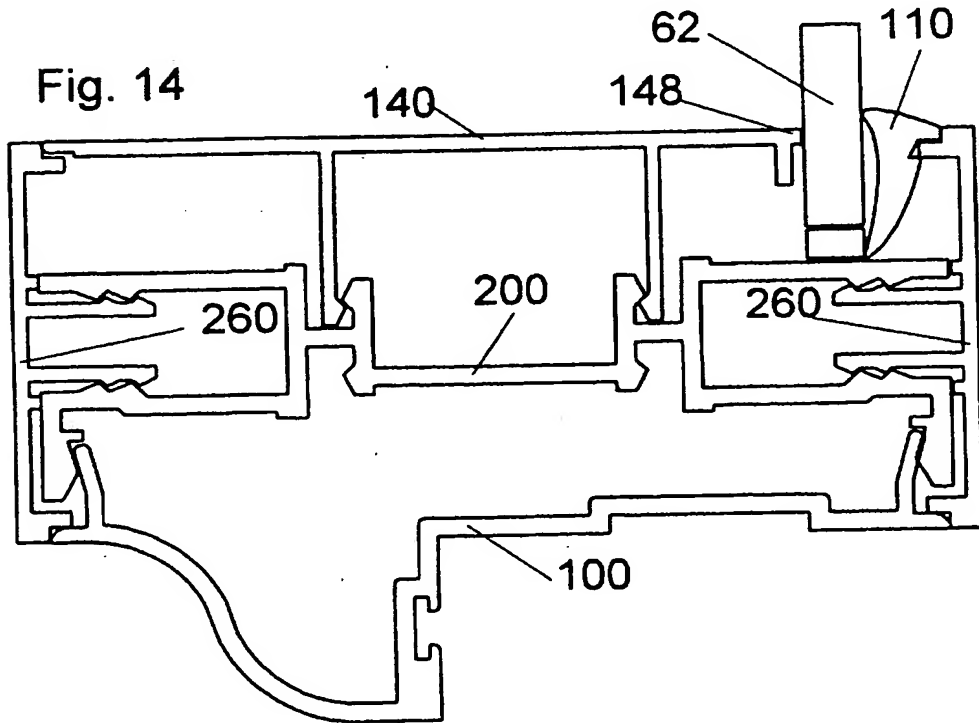


Fig. 15

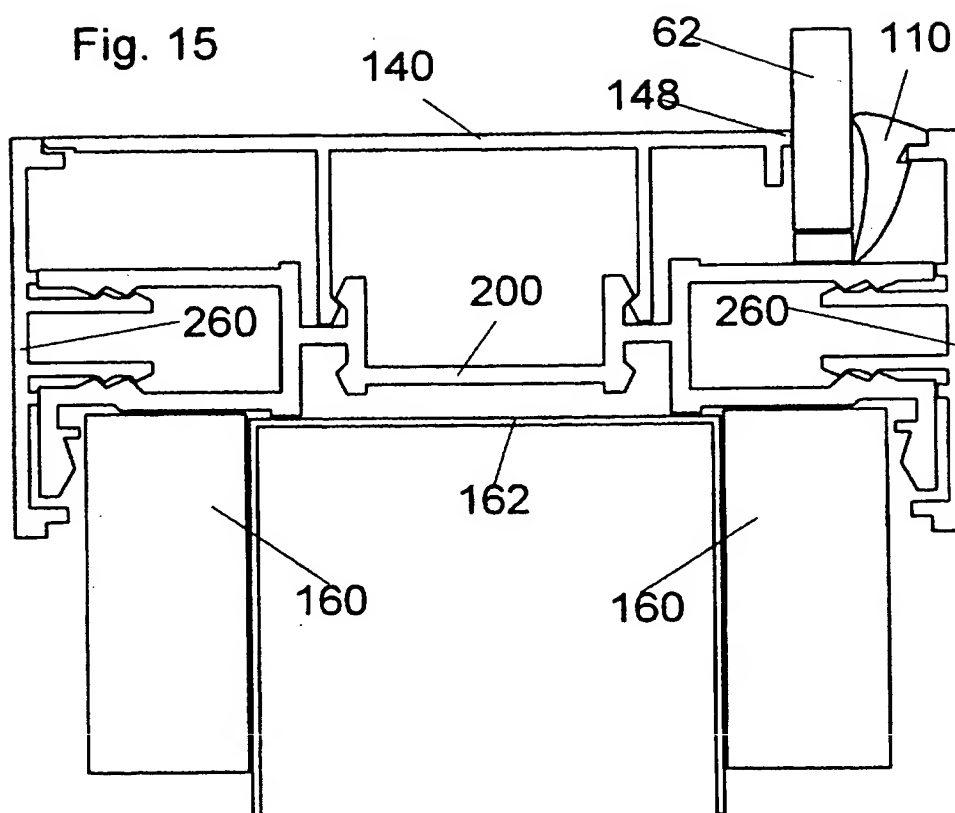


Fig. 16

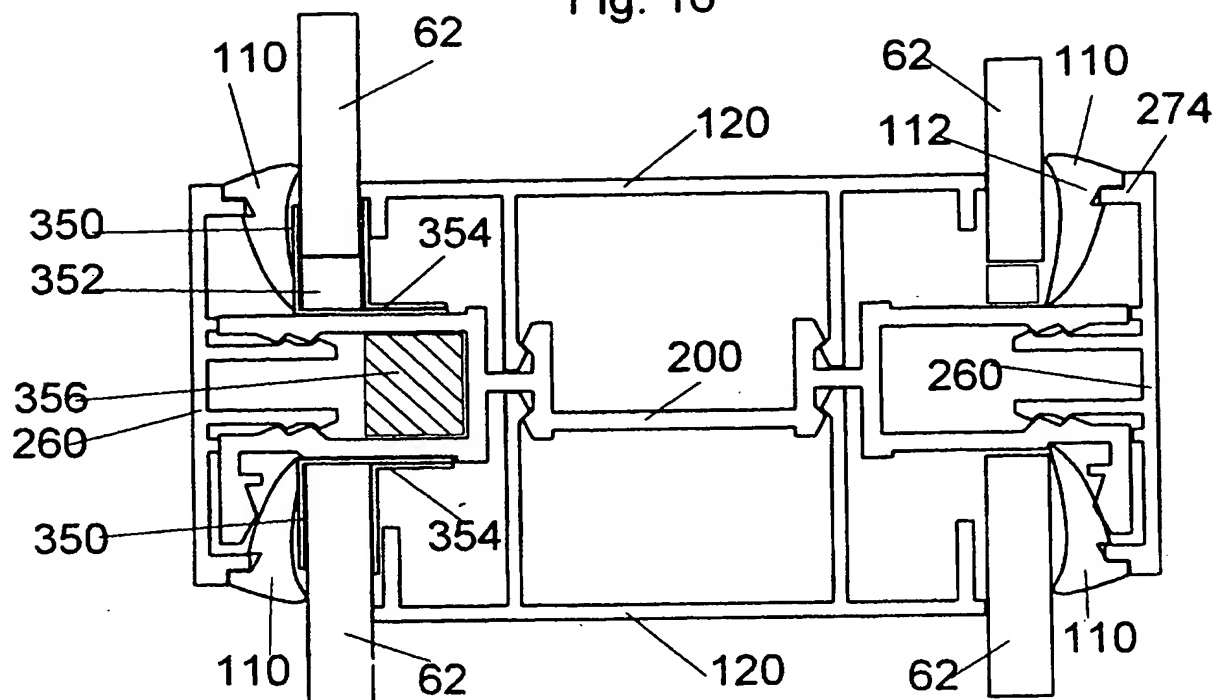
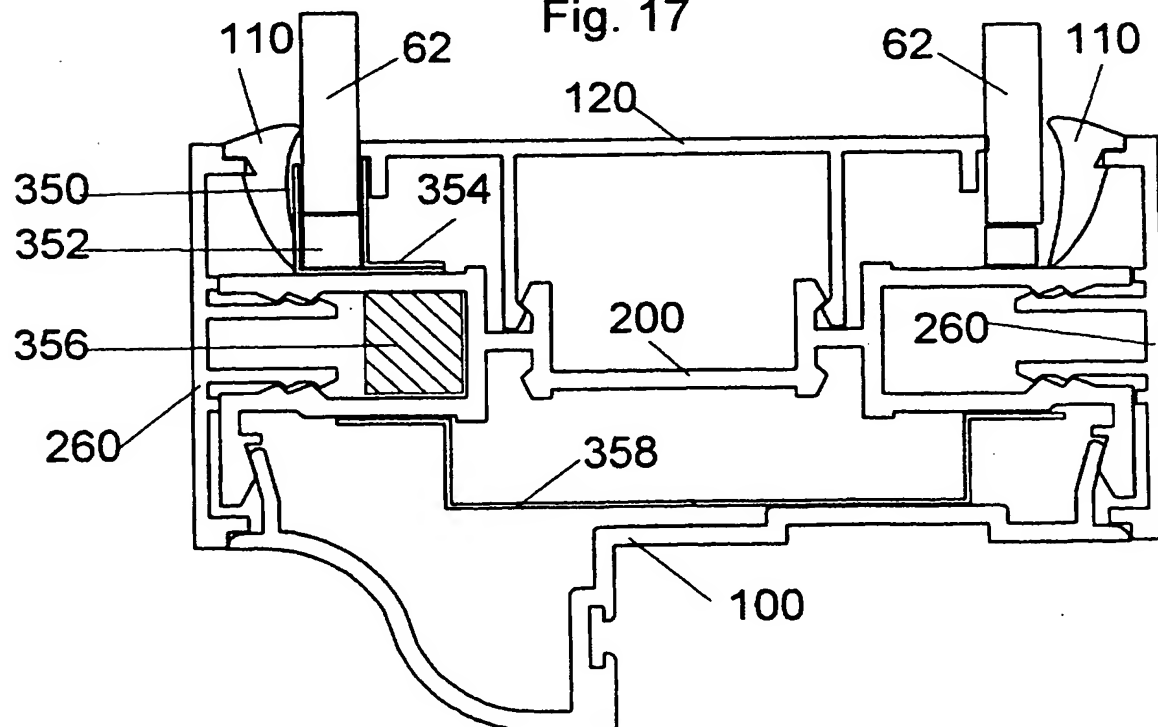


Fig. 17



SPECIFICATIONPARTITIONING SYSTEMSDescriptionTechnical Field

The invention relates to partitioning systems, and particularly to such systems having a primary elongate member whose cross-section perpendicular to its length is based generally on an H configuration. In known systems such elongate members are used, together with secondary elongate members, to form the vertical and horizontal components of a structure of a building, the areas between these components being filled with panels of opaque or transparent material, thereby forming partitions. Such partitions are used as windows and/or walls to separate, for example, rooms and corridors within a building, or to separate the interior of a shop or other building from the outside. Accordingly, in this specification the terms 'partition' and 'partitioning system' are to be interpreted broadly as embracing all such aspects.

### Background Art

It is known to form partitions using primary members of generally H cross-section wherein panes of glass forming panels are set generally perpendicularly to the cross-bar of the H. In such partitions the panes of glass may be restrained from movement by secondary elongate members which engage formations on the primary elongate members or by the formations themselves.

### Disclosure of the Invention.

According to the invention a partitioning element for a partitioning system comprises a primary elongate member (200) having a cross-section perpendicular to the length based generally on an H configuration and comprising two spaced main vertical bars (202) of equal length disposed generally perpendicular to a cross-bar (203) based upon a median axis (D-D') which bisects the main vertical bars, and each main vertical bar (202) being provided with a pair of outwardly-projecting horizontal arms (218, 220) disposed at equal distances from the median axis (D-D'), the arms (218, 220) being provided with similar clipping formations (222, 224) suitable for engagement by co-operating clipping formations on a secondary elongate member approaching in a direction perpendicular to the main vertical bars (202), and wherein a pair of horizontal arms (220) on the same side of the median axis (D-D') are each provided with a vertical stem (238) which terminates in a further clipping formation (240), the formations (240) providing for snap-fit engagement with co-operating clipping formations on a further secondary elongate member (100)

### Definitions

In this specification the figures of the drawings represent cross-sections of elongate members taken perpendicularly to their length. For convenience the term "section" is used for "cross-section perpendicular to the length". Also the term "horizontal" has been applied to direction across the paper from side to side, and the term "vertical" to the perpendicular direction up and down the paper from top to bottom. It will be appreciated that when partitions are erected in real space the elongate members may be disposed in various directions as required, so that "horizontal" and "vertical" as used in this specification need have no relationship with these directions in real space. They are used here merely to define relative directions.

In this specification the term "glazing member" is to be understood to mean any secondary elongate member which contacts glass either directly or through the intermediary of a flexible gasket.

Also in this specification the descriptors "first", "second", "third", etc. have been used in relation to elongate members and in relation to formations. These terms are to be regarded merely as tags or labels to help identify and distinguish one part from another; they have no significance as regards order, and are independent of other tags in the form of ordinals.

### Brief Description of the Drawings

*Figure 1* represents a section of a primary elongate member according to the invention.

*Figure 2* represents a detail of *Figure 1* at enlarged scale.

*Figure 3* represents a section of a secondary elongate member which may be associated with the primary member of *Figure 1*.

*Figure 4* represents a detail of *Figure 3* at enlarged scale.

*Figures 5a and 5b* represent the association of the members of *Figures 1* and *3* in two positions.

*Figure 6* represents a further secondary elongate member comprising a door frame member which may be associated with the primary member of *Figure 1*.

*Figures 7* represents the section of an elongate seal or gasket which may be used with the primary member of *Figure 1*.

*Figures 8 and 9* represent sections of two further secondary elongate members which may be used with the primary member of Figure 1.

*Figure 10* represents an assembly of the members of Figures 1, 3, 7 and 8.

*Figure 11* represents an assembly of the members of Figures 1, 3, 6, 7 and 8.

*Figure 11a* represents a part of Figure 11 to a larger scale.

*Figure 12* represents an assembly of the members of Figures 1, 3, 7 and 8 with other components.

*Figure 13* represents an assembly of the members of Figures 1, 3, 7 and 9.

*Figure 14* represents an assembly of the members of Figures 1, 3, 6, 7 and 9.

*Figure 15* represents an assembly of the members of Figures 1, 3, 7 and 9 with other components.

*Figures 16 and 17* represent the assemblies of Figures 10 and 11 when incorporating fire-rating elements.

#### Modes for carrying out the Invention.

As shown in Figure 1 a primary elongate member 200 for a partitioning system, especially a glazed partitioning system, has a section based on a H configuration, the section having two spaced vertical bars 202 disposed perpendicularly to a cross-bar 203 based upon a median axis D-D'. The bars 202 are equidistant from a vertical centre axis E-E' and the axis D-D' bisects the bars 202 providing upper and lower legs 204, 206, all of equal length. At equal distances from the centre axis E-E' the cross-bar 203 is provided with vertical bars providing upper inner vertical legs 208, and lower inner vertical legs 210, the four legs 208, 210, being of equal length. The legs 208, 210, terminate in formations 212, 214, which are suitable to engage in a snap-fit manner with co-operating formations on secondary elongate members in partitioning systems as described hereinafter. As shown a centre portion 216 of the cross-bar between the inner legs 210 is off-set from the axis D-D', although this is not essential. However, the portions 219 of the cross-bar intermediate the inner legs and the outer legs together have a total length less than that of the centre portion 216. The outer ends of the vertical legs 204, 206, are provided with horizontal stop surfaces 207.

The section of the elongate member 200 of Figure 1 has horizontal arms 218, 220, which project outwardly from the pairs of arms 204, 206, respectively, at equal distances from the axis D-D'. Similar formations 222, 224, facing inwardly towards the axis D-D' and comprising teeth 226, 228, 230, 232, are provided on the arms 218, 220, to provide resilient snap-fit engagement with co-operating formations on further elongate members to be described hereinafter. The arms 218, 220, terminate in end-faces 234, 236. The lower arms 220 are provided with vertical outwardly-extending stems 238 which terminate in formations 240 which provide for resilient snap-fit engagement with co-operating formations on a door member 100 shown in Figure 6 to be described later. As best seen in Figure 2 the right-hand formation 240 comprises - working in a clockwise sense - a vertical face which is the continuation of the end-face 236, a horizontal end-face 242, an inwardly-sloping face 244, an outwardly-sloping face 246, a horizontal shoulder 248 which may act as a stop, a vertical face 250 which may act as a stop, and a horizontal face 252. It is clear that the left-hand formation 240 will be the mirror-image of this.

Figure 6 represents a section of a first elongate secondary elongate member in the form of a door frame member 100 which may be snap-fitted into engagement with the primary member 200. The member 100 has a section which comprises a sinuous portion 101 between extreme ends 108, part of the sinuous portion being formed by linear parts. Near its ends 108, the portion 101 is provided with resilient formations 102 having outer parts 103 disposed to be engaged with the surfaces 246 of the formations 240 of the member 200. As best seen in Figures 11 11a and 14 the formations 102 have ends 107 to engage the stop shoulders 248 on the member 200. Between the formations 102 and the ends 108 are shoulders 106, the shoulders 106 and the ends 108 being such as to engage stop surfaces 276, 277 of a second secondary elongate member 260 to be described.

Figure 3 shows a section of a second secondary elongate member 260 to be used as an end cover in association with the primary member 200. The section of the member 260 is symmetrical about the axis F-F' and comprises a linear vertical portion 262 from which project horizontal arms 264, 266, equally spaced from the axis F-F'. The arms 264, 266, are provided with formations 268, 270, outwardly facing from the axis F-F', which are so arranged as to resiliently engage and co-operate in a snap-fit manner with co-operating formations 222, 224, on the member 200. The ends of the portion 262 are provided with

formations 272 shaped to provide a projection 274, a horizontal stop surface 276 and a vertical stop surface 277. When associated with a primary elongate member 200 and a first secondary elongate member 100 the stop surfaces 276, 277 may, in certain circumstances, provide for accurate location of the door frame member 100 with respect to the member 200 in both the horizontal and vertical directions. Projections 278, equi-spaced, from the axis F-F', extend horizontally from the portion 262, and have end-faces 280 which act as stops in a manner to be explained hereinafter. The spacing between the projections 278 is equal to that between the arms 218, 220, of the member 200.

As best seen in Figure 4, the formation 268 on arm 264 comprises a pair of teeth 282, 284, which in use engage with the teeth 226, 228, on the upper arm 218 of the member 200. A similar arrangement of two teeth 282, 284, forms the formation 270 on the arm 266.

Figure 5a shows an intermediate position in the snap-fit engagement of an end-cover 260 with a member 200. When the end-cover 260 is snapped into place on the member 200 firstly the outer teeth 282 engage the outer teeth 228 and 232, this being the position shown. This provides an "easy" position from which the end-cover can be readily withdrawn. However, further insertion of the end-cover causes both pairs of teeth on each side to be engaged, as shown in Figure 5b. whereby the effective length of the flexible arm lengths of the arms 264, 266, are reduced. This, together with the shape and disposition of the teeth means that a "hard" position is reached, from which it is much more difficult, though still possible, to withdraw the end-cover. The shape and disposition of the teeth is such that in the "hard" position there is still a slight force tending to draw the end-cover towards the member 200, but any movement is prevented by end stops 280 engaging the end faces 234, 236, of the member 200. In this way a precise and consistent distance is established between the centre of the member 200 and the vertical portions 262 of the end covers 260. It should be pointed out that in the course of erection of the partitioning, the end covers 260 are left in the "easy" position by the initial erectors, so that they may be readily removed subsequently by glaziers to effect the glazing, whereafter they are inserted to the "hard" position.

Figure 7 discloses a section of a standard elongate releasable flexible seal or gasket 110 formed from rubber or other flexible material. The section includes a recess 112 suitable to receive the

projection 274 on the member 260, and portions 113, 114 to provide a wedge action to retain a glass pane.

Figure 8 shows a section of a third secondary elongate member 120 which is symmetrical about a vertical axis G-G'. The section of the member 120 comprises a horizontal linear portion 122 from one side of which extend vertical legs 124 equidistant from the axis G-G'. The legs terminate in resilient formations 126 so disposed as to engage in a snap-fit manner with the formations 212, 214, on the primary member 200. Also disposed on the portion 122 and nearer to its ends 128 are further vertical legs 130 which are on the same side as the legs 124 but are shorter in length. The legs 130 are provided to define a recess which in use can accommodate a steel, fire-protection member.

As best shown in Figures 10, 11, and 12 a pair of end covers 260, an elongate member 120 and a pair of gaskets 110 can be used to effect double-glazing on one side of a primary elongate member 200. The end covers 260 are snapped into place by formations 268, 270, engaging formations 222, 224, the member 120 is snapped into place by formations 126 engaging formations 212 or 214. The ends 128 of member 120 abut sides of glass panes 62, whose other sides are held by flexible gaskets 110 engaged on the projections 274 of the members 260. It is clear from Figure 10 that another member 120 and two further gaskets 110 enable double-glazing to be effected on both sides of the member 200. It is also clear from Figure 11 that a door support member 100 may be snap-fitted on the member 200 by the resilient engagement of its formations 102 with the formations 240, thus providing double-glazing on one side of the member 200 and a door frame member on the other. Figure 12 shows an arrangement with double-glazing on one side of a member 200 and plasterboards 160 associated with a steel track member 162 on the other. The track member 162 is seated on the faces 207 of the member 200 and the plasterboards are outwardly located against the stop surfaces 250.

As best seen in Figures 11 and 11a the association of a primary elongate member 200, a door frame member 100 and an end cover 260 results in: (a) an end-face 280 of end cover 260 abutting an end face 236 of member of member 200, (b) an end 107 of a door frame member 100 abutting a stop shoulder 248 of primary member 200 and a portion 103 of the door frame member abutting a surface 246 of the primary member 200, and (c) a shoulder 106 and an end

108 of the door frame member 100 being located next to surfaces 276 and 277 of the end cover 260 respectively.

Figure 9 discloses a section of a fourth secondary elongate member 140 which is usable with a primary member 200 and a gasket 110 to effect offset single-glazing. The member 140 is similar to the member 120, having a horizontal linear portion 142, legs 144 terminating in formations 146, and on one side a short vertical leg 150. However, on the other side the linear portion 142 is extended to an end 152, and there is no short vertical leg. Its use is best seen from Figures 13, 14 and 15 which show a glass pane 62 being held between a gasket 110 and the end 128 of the unextended side of the portion 142, whilst the end 152 of the extended portion engages the stop surfaces 276, 277, of an end cover 260.

Figures 13, 14 and 15 are respectively similar to the Figures 10, 11 and 12 except that in each case off-set single-glazing using members 140 replaces the double-glazing.

Clearly modifications of the components described herein may be provided without departing from the scope of the invention. For example, a blanking or infill member may be provided by extending both sides of the member 140 instead of just the one as in Figure 9. In this case the ends 152 would engage stop surfaces 276, 277 of both members 260.

Apart from the gaskets 110, which are of rubber or other flexible material suitable to form a seal, the members described above may be made as extrusions of aluminium, aluminium alloy or plastics material as required.

Figures 16 and 17 show the arrangements of Figures 10 and 11 when provided with fire rating members. Metal, preferably steel, members 350 and 354 of L-shaped cross-section are positioned with one limb of the L adjacent the glass and the other limb adjacent an arm 218 or 220 of the member 200. A block 356 of insulating, fire-resistant material is disposed between the arms 218 and 220. As shown a normal glazing block 352 supports the glass as is customary. It will be clear that a U-shaped steel fire rating member may replace the block 356

between the arms 218 and 220. In Figure 17 a further metal fire rating member 358 of top-hat-shaped cross-section is disposed behind the door frame member 100.

In each case it will be clear that steel plate is provided across substantially the whole of the interior of the system perpendicular to the axis D-D'

It will be appreciated that since the secondary members 260, 120 and 140 all contact glass either directly or through the intermediary of a flexible gasket they may be regarded as glazing members.

It will also be appreciated that the partitioning systems disclosed herein are demountable in so far as all infill members such as glass and plasterboard and all fire rating members can be installed, removed or replaced by the unclipping of secondary elongate members without disturbing the primary member 200.

It will also be appreciated that the end covers 260 can be removed and replaced without disturbing any other structural members of a partitioning wall. Since the faces of the members 260 are the parts seen by a viewer of a glass partitioning wall, it will be appreciated that by changing the members 260 for others of a different colour or surface pattern, a change to the appearance of the wall can be readily effected.

The Applicant's reference for this Application is MHR9705 (Serial No..... ).  
Attention is directed to the Applicant's other Application of even date with the reference MHR9704 (Serial No. ....).

## CLAIMS

1. A partitioning element for a partitioning system comprising a primary elongate member (200) having a cross-section perpendicular to the length based generally on an H configuration and comprising two spaced main vertical bars (202) of equal length disposed generally perpendicular to a cross-bar (203) based upon a median axis (D-D') which bisects the main vertical bars, and each main vertical bar (202) being provided with a pair of outwardly-projecting horizontal arms (218, 220) disposed at equal distances from the median axis (D-D'), the arms (218, 220) being provided with clipping formations (222, 224) suitable for engagement by co-operating clipping formations on a secondary elongate member approaching in a direction perpendicular to the main vertical bars (202), and wherein a pair of horizontal arms (220) on the same side of the median axis (D-D') are each provided with a vertical stem (238) which terminates in a further clipping formation (240), the formations (240) providing for snap-fit engagement with co-operating clipping formations on a further secondary elongate member (100).
2. A partitioning element as claimed in Claim 1, wherein each further clipping formation (240) is provided with a sloping face (246) leading to a horizontal shoulder (248) which may act as a stop, and thence to a vertical face (250) which may act as a stop.
3. A partitioning element substantially as described with reference to Figure 1 of the accompanying drawings.



Application No: GB 9700928.6  
Claims searched: 1-3

Examiner: Mr.D.J.Lovell  
Date of search: 27 February 1997

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK CI (Ed.O): E1D ( DCB, DCX, DF194, DK, DLCKH, DLCKJ, DLCKM, DLEKH,  
DLEKJ, DLEKMNV )  
Int Cl (Ed.6): E04B E06B  
Other: On-line database - Derwent W.P.I

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage | Relevant to claims |
|----------|---|--------------------|
| A        | WO 90/08865 A1 Iber Modul S.A             |                    |
| A        | US 4587774 Wendt                          |                    |
| A        | FR 2376927 Soc. de Diffusion etc.         |                    |

|   |   |   |  |
|---|---|---|--|
| X | Document indicating lack of novelty or inventive step   | A | Document indicating technological background and/or state of the art.  |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention.          |
| & | Member of the same patent family  | E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |